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And Loving It **PAGE 22**



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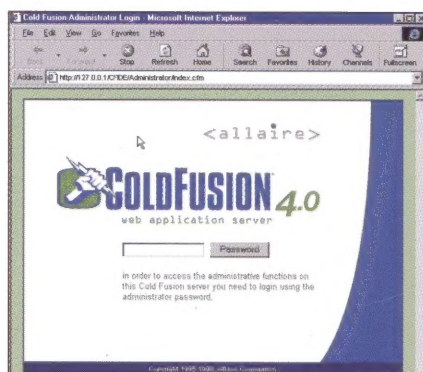
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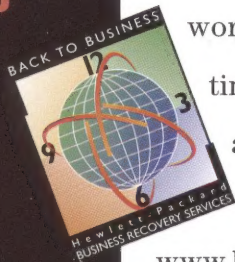
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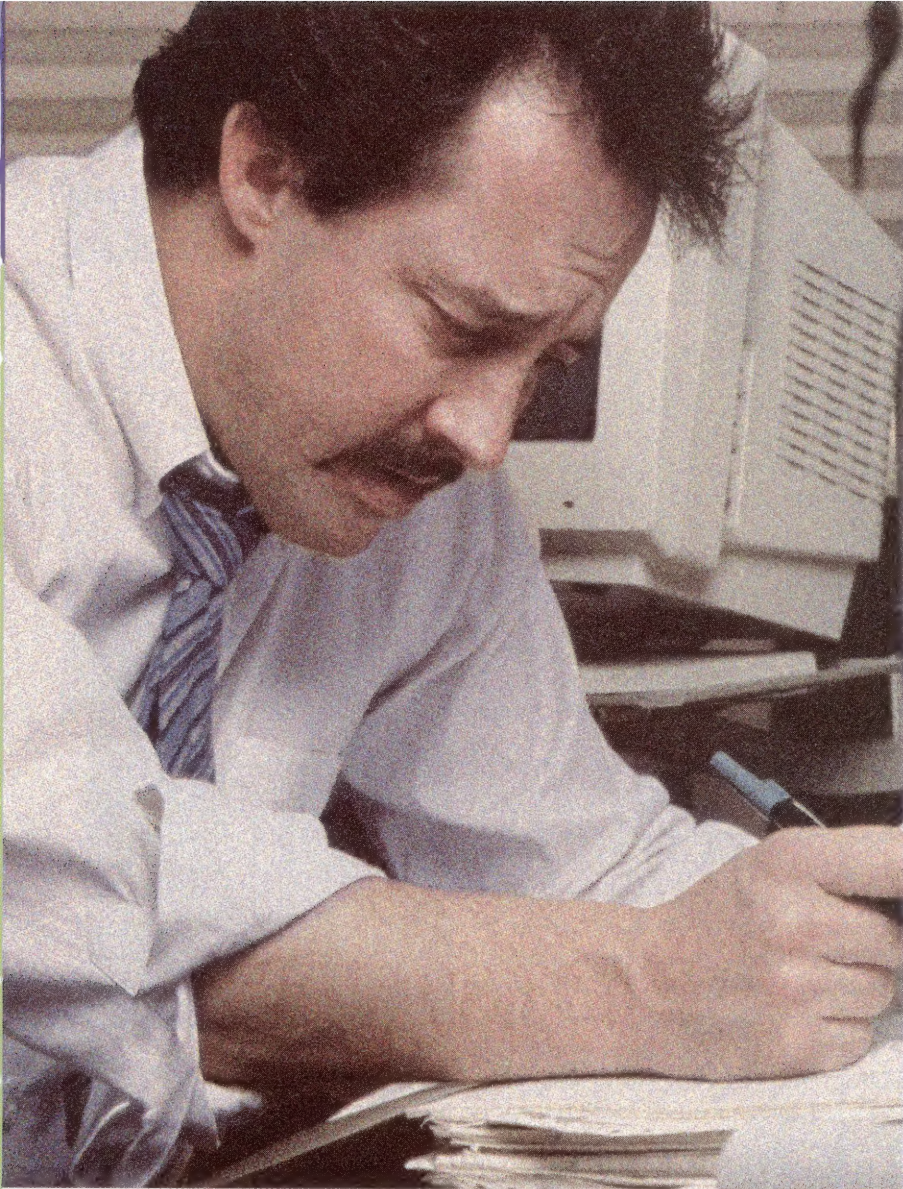
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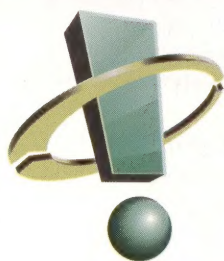




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Getting Jig-E With IT

Maybe it was the universal appeal of sand, surf and sun. Maybe it was the gleaming, white beaches and blue-green waters of South Beach, Florida. Or perhaps the Cuban-inspired food. I'm not entirely sure. But I do know Carly Fiorina, HP's new CEO was there. As was Ann Livermore and Bill Russell. So, with 75% of HP's 21st century brain trust in full attendance, you can be sure that E-Services World in Miami Beach was more than your usual vendor-run-at-the-mouth event.

Also on hand were 700 or so of HP's best IT customers and invited computer and business trade press reporters. And yes, there was some vendor hype here and there from the show sponsors: A.T. Kearney, BEA, Lucent Technologies, Oracle and Qwest. But hey, what's a little hyperbolic bantering between friends when you're trying to change the world?

Waxing philosophic was Ms. Fiorina in her opening keynote address: Quoting Socrates, she said, "We cannot live better than in seeking to become better." Ms. Livermore, on the other hand, gave a repeat performance of her HP World presentation, complete with the funky E-services video. If you attended her keynote at HP World, then you know what I'm talking about. If not, you're missing something unusual from HP: a classic piece of hip-hop infotainment with quick cuts and unusual camera angles and lots of close-ups of HPers and users talking about "the next e." It's good. And it's certainly a leap beyond the typical HP marketing fare.

The implicit theme for the two-day event: better living through E-services. That subject was brought home to the audience listening to MIT's Michael Dertouzos, Director of MIT Laboratory for Computing Science. All attendees were given a copy of his 1997 book: *What Will be: How the New World Of Information Will Change Our Lives*. Here's an excerpt: "The Information Marketplace will make us ... half, urban sophisticate, roaming the virtual globe and half, villager, spending more time at home and tending to family, friends and the routines of neighborhood."

Unfortunately, I missed Dertouzos' talk because I was interviewing A.T. Kearney's Doug Aldrich (and you thought I was on the beach). Friendly, thoughtful and polite, Aldrich is a visionary in his own right (and new book author). You could describe him as a big man with big ideas. Manufacturing-centric business thinking, Aldrich explained, is dead. "The end customer, in many cases the consumer [not the manufacturer], decides who gets to play [in the channel]. Lot sizes of one are becoming an issue. That's never happened before."

Digital value-add, according to Aldrich, inherent in HP's E-services vision, is the key. "Digital value add can change the experience and nature of time." He cites Mobil's Speed Pass as an example. After doing his own time-motion study on self-service at a gas pump, Aldrich determined that it takes about 20 seconds to open your wallet, fuss with your credit card, etc. "With the Speed Pass, everything's been pre-selected. All you have to do is pump. Mobil's had a huge increase in repeat business. The impression is the consumer will do what it takes to buy time."

Last, but certainly not least, Bill Russell brought out some of the "toys" that have been cooked up in the HP Labs during the past several months. These "info-appliances" of the E-services world will be based on Chai, HP's embedded version of Java.

I end my whirlwind tour of HP's E-services World — strangely enough — at the beginning. Buzz Aldrin was the featured opening day keynote speaker. Mr. Aldrin, although promoting his own "Space Tourism" concept and the company that would build the rockets for such a venture, provided, nevertheless, an interesting counterpoint about risk. "It's a risk-adverse society we live in," he casually mentioned, while talking about his life as test pilot and eventually an astronaut who would walk on the moon behind Neil Armstrong. But, it's all about risk and rewards. The E-services strategy is certainly a risk for HP. And maybe for your business too. But think of the rewards. Do you want to reach for the moon? It could be worth the risk.



Better living through E-services?

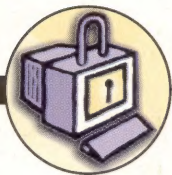
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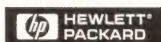
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What's Up With NT?

In today's world of ubiquitous, standards-based computing, "availability" and "reliability" serve as a kind of code for the desire to manage the risks inherent in computing networks. Historically, when confronted with the consequences, corporate organizations opted for assured availability. Specifically, assured availability technologies must deliver the following capabilities transparently to users, without human intervention, programming or administration: nonstop processing; continuous data access; uninterrupted connectivity; disaster tolerance; and constant performance.

In addition, these solutions must: rely on configurations of standard, off-the-shelf server components; run shrink-wrapped application software and the off-the-shelf NT; continue computing through all single points of component failure and repair; automatically assimilate new components to restore full redundancy; and mask transient operating system failures.

Today, increased dependence on computing is necessarily widening the category "mission critical" to include applications as mundane as e-mail. Therefore, anything less than assured availability gambles with the welfare of the enterprise.

In addition, vendors presenting alternative positioning expose themselves to competitive attacks based on other operating systems, as well as support burdens, de-installations and unfavorable publicity. Increasing dependence on information systems will only accentuate demand for the sort of "digital dial tone" delivered by assured availability systems. Therefore, from a competitive perspective, this tip-of-the-spear positioning strengthens Windows NT as a server platform.

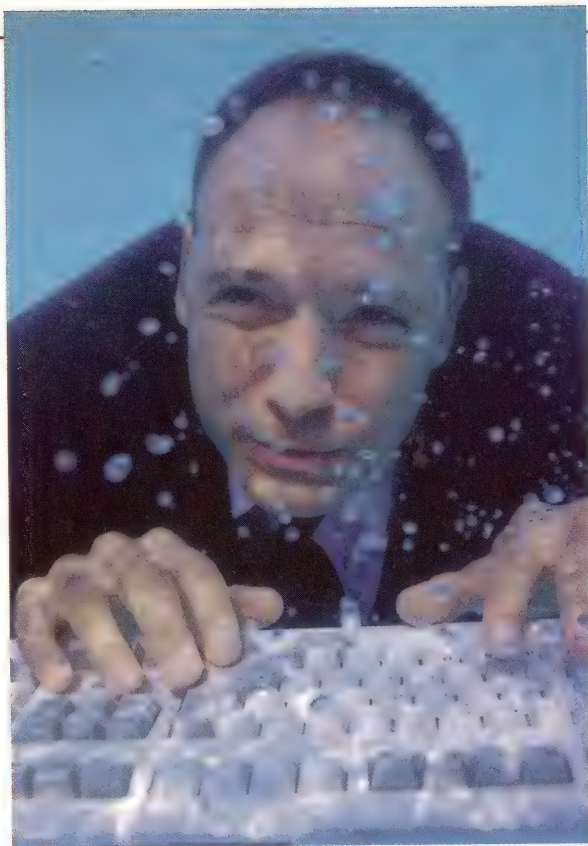
First, by delivering 99.999% uptime, assured availability solutions pre-empt criticisms of Windows NT's reliability and availability. Second, promoting a range of availability solutions that do not require proprietary hardware or software, with nonstop service at the high-end of the range, puts competitors on the defensive, by forcing a response in kind. Finally, the strategy gives some credence to the claim that customers can exploit a rich software library, standard API development, simple testing, widely available expertise, uncomplicated deployment, universal management tools and easy administration. Only Microsoft can make this assertion.

In the final analysis, in competitive situations, Windows NT, its suite of server software products and Windows-based third party applications win. Large-scale applications will rely on a rich mix of availability technologies, techniques, and best practices based on the complex of variables and constraints governing the project and deployment. Consequently, it's axiomatic: taking chances by ignoring risk yields unanticipated and potentially catastrophic consequences of system failure.

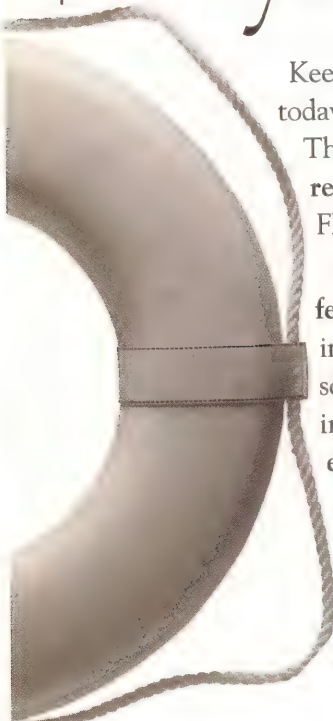
Risk avoidance positioning for the range of NT-based availability technologies, with assured availability as the tip-of-the-spear, yields tremendous benefits. From this posture, enterprises can guard against the costs and consequences of unpredictable downtime by analyzing, predicting, and rationally accept risk. Moreover, for Microsoft and its partners, the strategy puts competitors on the defensive and accelerates the adoption and implementation of Windows-based systems.

Conversely, no discernable value or upside arises from alternative postures in light of the increasing costs of downtime relative to improving price performance and functionality of standard hardware and off-the-shelf software. Given the burgeoning dependence on computing, taking chances with availability means that the most important, most sensitive applications will be identified when they fail, after the damage has been done.

— Craig Jon Anderson is
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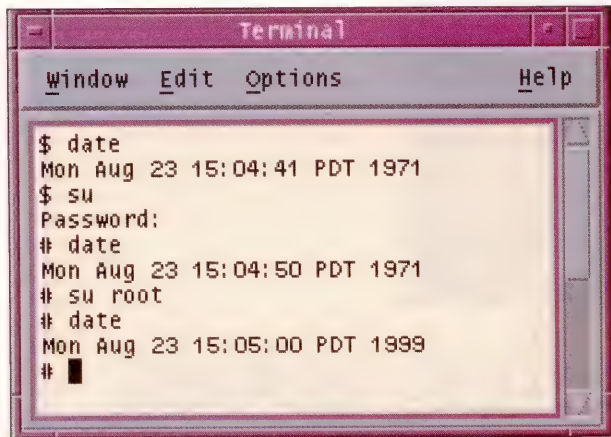
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Whether you're a serious procrastinator or are simply looking for a contingency plan come January 1, 2000, SolutionSoft Systems Inc. publisher of SN2K, a "time machine"-like tool for HP-UX and other midrange platforms, hopes to offer some relief for your Y2K concerns.

"We've actually seen some companies that are finished testing and are finished remediation and are truly ready for Y2K," Dave Leone, SN2K product manager acknowledges. "But we're also seeing a lot of companies especially at the state and local levels where they're really not ready at all."

SN2K (available now) is a virtual time machine that protects applications and allows them to continue

running as expected even if they ultimately prove to be disastrously Y2K non-compliant. SN2K works by tricking applications into running in 1972, the days and weeks of which match those of the 2000 calendar year exactly.

SN2K uses a simulated virtual clock and doesn't make any changes to the actual system clock, which SolutionSoft's Leone says ensures that system operations and Y2K compliant applications remain unimpaired.

When SN2K is invoked by a suspect application, it intercepts program calls from the application to the system clock and returns a simulated time and date minus 28 years relative to the present date. Backup, logging and other time-dependent tasks remain unaffected by SN2K because file time stamps and system logs continue to reflect the actual system clock, rather than SN2K's virtual time clock.

A common practice similar to installing a software-based solution like SN2K, Leone says, is to move suspect applications to separate, dedicated systems and continue to run them in a discrete environment. But this poses additional problems. "You'd have to take

an application off the current system, put it on a separate system so that it thinks its running before Y2K, adjust your data, etc. In most cases, it's much too expensive and resource intensive."

SN2K is positioned as a "safety net" for suspect HP-UX system. Rob Enderle, a senior analyst with Giga Information Group agrees that the SolutionSoft approach may be a benefit. But he expresses concern that frantic HP-UX managers could seize on SN2K as a Y2K cure-all of sorts. "Under normal circumstances, this is something that you'd like to test the heck out of, and the only problem that you have in this case is that you don't have the time [in which] to do it."

Enderle also cautions against the possibility of a product like SN2K introducing new problems on top of a system's existing Y2K difficulties. "While it sounds good, it may not work in actual practice."

— Stephen Swoyer,
Contributing Author



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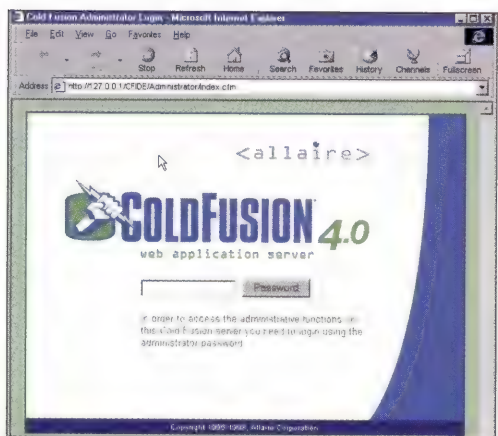
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As the second most popular Unix-based development and hosting platform for Web applications in the enterprise, behind Sun Microsystems' Solaris, "HP-UX was a logical platform choice," says Brian Surkan, product manager for ColdFusion Server.

ColdFusion Server, from Allaire Corp. (Cambridge, Mass.), originally developed for Windows NT and later ported to Sun Microsystems' Solaris operating system, is a rapid application development tool. ColdFusion Server 4.0 leverages a tag-based server scripting language — ColdFusion Markup Language (CFML) — that integrates with both HTML and the Extensible Markup Language (XML). "One of ColdFusion's design principles is that it's

a rapid development platform, which is primarily a function of how the server works and how the language [CFML] is written," explains Surkan.

For HP-UX administrators with Windows NT clients or servers, ColdFusion offers support for Microsoft's ODBC and OLE DB technologies, as well as native database drivers for connectivity to Oracle and Sybase databases. ColdFusion is also interoperable with both the COM and CORBA object models.

Surkan expects ColdFusion Server 4.0 to find a place in HP-UX environments where implementing a Web application server solution for the first time is a priority, as well as with existing customers who've deployed ColdFusion on Windows NT or Solaris and are looking to run mixed-platforms.

For example, Kyle MacDonald, vice president with systems integrator and application service provider Flare Interactive Communications (Fort Collins, Colo.) notes that ColdFusion "is a lot easier to use than a product such as Netscape Application Server."

According to MacDonald, ColdFusion

Server 4.0 makes the problem of providing Internet-based access to ERP applications and other HP-UX mainstays a much more manageable one for many of his company's customers.

"Sometimes it's very difficult to connect an application like Oracle Financials directly to the client, because you're exposing huge firewall issues if they're connecting over the internet," he comments. "So [in the case of one HP-UX customer] we built a lot of Web interfaces to their Oracle data center and put ColdFusion Server at the center of it all."

"Now that we have the HP-UX ColdFusion Server option, customers have the ability to move their applications to HP-UX or run a mixed environment," says Allaire's Surkan. "As far as whether or not people might want to upgrade or move from NT to a more scalable HP environment, that really depends on the nature of the project."

But Flare Interactive's MacDonald, for one, is positive: "We're really pleased with the fact that it's now a native HP-UX platform, because now we can start to use it to achieve more."

— Stephen Swoyer,
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Business Continuity For Better Business Health

Magellan Health Cashes In With Reality Checks.

AS THE COUNTRY'S LEADER in behavioral health, employee assistance programs and human services, Magellan Behavioral Health focuses on helping people in crisis. To ensure that critical operations in the event of a disruption to its data center operations would continue, the company built a comprehensive business continuity program.

Terry Shaughnessy

Magellan Behavioral Health, a division of the \$2 billion Magellan Health Services, Inc., (Columbia, Md.), employs 6,000 people and serves more than 64 million members through a nationwide provider network and regional service centers operating in the U.S., Canada and Puerto Rico. A disaster affecting their IT environment would have a disastrous domino effect. "Claims wouldn't be processed. And that means checks wouldn't be cut for doctors, therapists, clinicians and other providers," says Tina Yeargain, manager of technical operations for Magellan Behavioral Health.

"Additionally, we've developed several client-server applications that rely on customer-specific information extracted from our midrange systems. If the midrange environment goes down, the client-server platforms can't get the data they require and this has an impact across the organi-

zation and on our ability to effectively interface with our clients." Magellan's AMISYS (version 9.52) healthcare claim processing application uses an HP 3000 Model 997/800 running MPE/iX 5.5. Also available are two IBM AS/400s (a 530 running OS/400 V4R3 and a 620 running V4R1) running its home-grown applications like the Claims Account Payable System (CAPS) application Employee Assistance Program (EAP), Managed Care Program (MCP) and Integrated Product applications.

Yeargain, along with George Conway, operations support specialist, were charged with managing Magellan Behavioral Health's business continuity program for the midrange platforms. "Because we are focused on managed mental healthcare, a lot of the impacts aren't quantifiable," says Yeargain. "If someone calls a hotline to talk to a therapist because they're suicidal and that therapist doesn't have access to the client's records or history because the

systems are down, the impact is hard to quantify. There's a human factor that absolutely cannot be ignored."

Previously, the pair had worked together at a large electrical manufacturing company where they were able to identify an hourly dollar amount of how much revenue the manufacturer lost if the systems were down in terms of sales orders, inventory and the overall manufacturing process. With assistance from Comdisco's (Rosemont Ill.) professional services organization, Magellan Behavioral Health conducted a Business Impact Analysis (BIA) to identify quantifiable as well as unquantifiable factors.

Also in use is an HP 9000 (a Model 170 running HP-UX 10.20 for Costware Technology Corp.'s Datagate STC, an EDI/transaction-based application that pre-processes membership and claim files from Magellan Behavioral Health's customers into a standard format. The standardized files are then batch-loaded into the claim processing applications running on the HP 3000 and the AS/400 systems. Lastly, the company has built a data warehouse (using IBM's DB2 running on an RS/6000 Model R40) that captures data on claims from the other systems using Bridgeware from Quest/Taurus. All the systems are connected via a TCP/IP network using a Cisco 5500 switch.

Once the BIA was complete and the needs were identified, Magellan Behavioral Health began developing and implementing its program. Using ComPAS, Comdisco's business conti-

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nuity planning software tool, Conway led the development of the business continuity plan. "The Comdisco solution," says Conway, "supported a multitude of platforms throughout a network of recovery facilities." Magellan Behavioral Health finalized its recovery strategy, selecting to relocate to a Comdisco recovery facility located in Carlstadt, N.J., where it has access to an HP 3000, HP 9000, RS/6000 and two AS/400s, which they need to successfully recover their critical applications.

HOT-NODE NETWORK

The company also is implementing a hot-node network solution that will provide it with immediate network connectivity from the recovery facility to its headquarters in Columbia, Md. and its other business locations throughout North America. "It may cost less to have network equipment stored away that's just pulled out once a year for testing, but you also have to factor in the time to set it up and you also run the risk that it may not work," said Yeargain. "Having a solution like a hot-node network that provides a near real-time switch over may cost a little more, but the trade-off is that it's readily available. You know it's going to work and it's one less issue to contend with during recovery."

Yeargain and Conway are also strong advocates of thorough testing to help ensure that Magellan's environment remains recoverable. "A lot of companies have a plan, but it doesn't get tested enough. Or they just go through the motions of testing but don't really do all the verification and validation they need," said Yeargain. Currently, Magellan's recovery time objective is 72 hours. However, successfully tested recoveries have occurred in half that time. "What you learn about the recovery process through testing can make the difference between a successful recovery and chaos."

Magellan Behavioral Health essentially starts its tests from scratch — completely restoring the systems and ensuring they're running as expected.

"We try to replicate a normal production day as close as we can for each of the platforms," said Yeargain. "Once the systems are restored, we have a pre-determined list of the production batch jobs we want to test. We have users at a few remote locations set up to log on and test to make sure they can get into the systems, process claims, conduct searches and anything else they normally would do on any given day."

Having conducted several on-site tests at the Carlstadt recovery facility, Magellan Behavioral Health is trying a new approach: testing remotely. "The ability to test remotely, as well as to recover remotely if needed, appealed to us," said Yeargain. "We didn't want to be in a situation where if we couldn't get to the Carlstadt facility, we wouldn't be able to recov-

er. [Now], we can recover remotely from [Comdisco's] St. Louis location or in their Wood Dale, Ill. location outside of Chicago."

According to Conway, the remote testing worked quite similar to on-site testing. "Our hardware remained in New Jersey, but our employees participating in the test were located in the Wood Dale facility and interfacing with Comdisco technicians and our recovery environment set up in Carlstadt. "We had our business users log into the recovery systems and conduct production activities as we would with any other test. And it all ran smoothly."

— Terry Shaughnessy is director of distributed systems for Comdisco, Inc. (Rosemont, IL.; www.comdisco.com).

PROGNOSIS: DLT

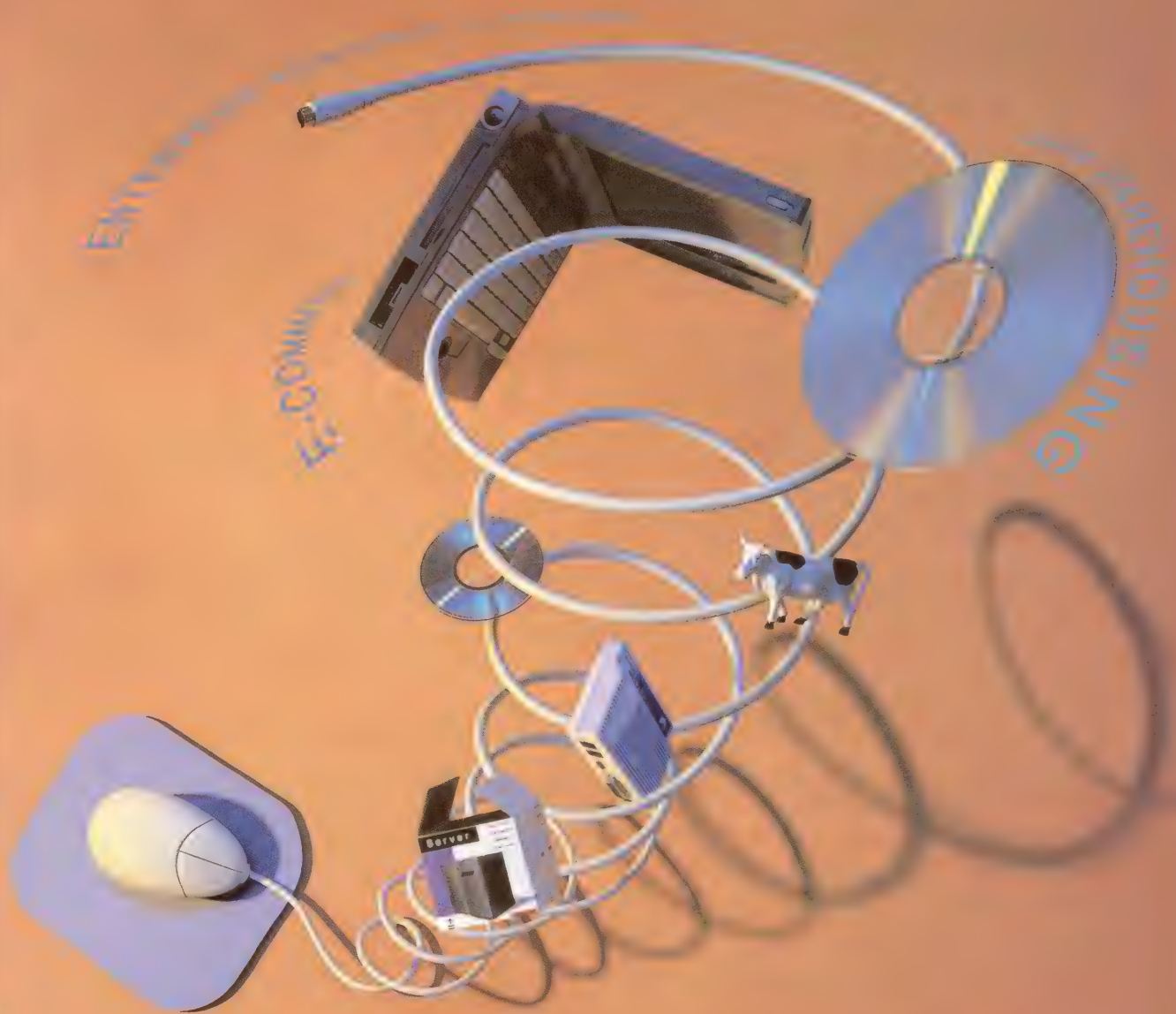
Although Magellan Behavioral Health has been able to successfully restore its systems in half the time of its stated recovery time, the company continues to seek ways to improve. However, data and applications — particularly the AMISYS claim processing application — are growing at a rapid rate. That, in turn, takes up more disk space and slows recovery time.

To help alleviate the problem, both in a recovery scenario as well as for day-to-day back-up operations, Magellan Behavioral Health is in the process of implementing an enterprise back-up solution that uses a StorageTek 9710 DLT tape library to back up all its platforms. Currently the company's midrange systems are being backed up by utilities indigenous to each system and then to tape drives specific to each system.

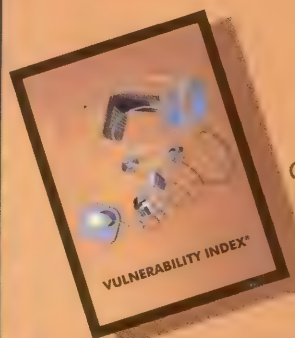
"We're always looking for ways to try to get the systems to restore faster and will be working closely with Comdisco to integrate the tape library into our business continuity program as it will impact how we recover," says Conway. "The DLT media is supposed to be more reliable and have a higher tolerance for faults and through an enterprise back-up approach, we're hoping the new tape library will help further quicken recovery."

Another recommendation is not to underestimate the amount of disk needed to recover. "Allow for as much disk as needed to completely rebuild your systems," said Conway. "It will take less time to recover and you'll be less prone to mistakes than if you're trying to pull pieces together from different disks at time of disaster."

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Masters Of Disaster

DURING A TIME IN COMPUTING HISTORY when IT is the engine of change and the competitive driver for global businesses, it's difficult to think of a time when system disruptions, outages, or even natural disasters weren't really that big a deal. Only naive users panicked when the system crashed. Back room downtime was a dirty little secret — a skeleton in the glass house closet. For those who remember when downtime was planned, the casual motto seemed to be: "What? Me Worry?"

A month ago Hurricane Floyd ripped up parts of the East Coast. And, those who take notes, recall the 5.0 earthquake that shook San Francisco in August during HP World. But I don't want to get too melodramatic. Still, the days of pulling backups out of your drawer to recover data are over. Without effective disaster recovery plans, companies of all sizes are at risk of losing not only data, but also sales and customers. If your company

is a public one, especially of the e-commerce kind, then investor confidence and stock value are also at stake.

If you need more evidence, check out the DLTape ProveIt Index for Disaster Readiness (www.dltape.com/proveit) which found that:

- 72 percent of companies are in the danger zone or inadequately pre-

pared for disaster recovery.

- 82 percent of companies do not have a tested disaster recovery plan.
- 75 percent of companies do not understand the financial impact of a computer outage.

Those in the 24-hour world of financials, manufacturing and health industries have always had the need to recover very quickly from outages. Now, Web-based e-business of all kinds find themselves exposed to the

George A. Thompson

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E-Bay syndrome. "The systems and infrastructures required are markedly different than what was being put in place three or four years ago," according to Les Wilson, HP E-Services Systems and Solutions Manager for Business Critical Computing. "And customer and consumer expectations have evolved to a point now where they will not tolerate downtime, especially from an Internet site or a dot-com company."

Additional studies conducted by the Contingency Planning Association Research and Strategic Research Corp. estimate that unprepared companies are exposed to losing from \$18,000 to \$6.4 million in the event of an IT-disabling disaster strike. In other words, improving High-Availability (HA) has become a necessity.

Take note of the average cost per hour of downtime in the following industries:

- \$6.5 million brokerage operation
- \$2.6 million credit card processing

- \$150,000 pay per view
- \$93,000 TV home shopping
- \$28,000 package shipping

With stakes that high, if you're down, you're dead. Failure is not an option. But the savviest of IT managers don't stop at disaster recovery. They don't think of high-availability as a luxury. They talk about business continuity. They know that downtime is not only bad news, it makes news. These masters of disaster — if you will — know that just about any IT disruption can hurt their users, their customers and their suppliers.

That's why this month, the editorial staff at HP Professional interviewed three "masters of disaster" who discuss their business continuity plans and philosophies.

What does it take to be a master of disaster? Smart instincts, an emphasis on full backups, a penchant for redundancy and just plain common sense were some of the common themes among our trio: Rory Hammond, Manager of Information

Systems at Menlo Logistics, Jose Rivera, Technical Services Operations Manager of Aearo Company, and Scott Womer, Systems Engineer of Atmos Energy. They have dealt with their share of power outages, construction debris and just plain human error (which accounts for about 80% of disruptions).

They have also been fortunate. None in our group have experienced a true natural disaster (defined as an act of God). But that's why they are the masters. They aren't waiting for the next flood, bombing or earthquake. Like minutemen they have their systems and configurations available to continue — in a minute. When the chips are down, you call their name.

Editor's Note: HP Professional thanks Gayle Mestel of CCS Public Relations (Carlsbad, Calif.) for her assistance. We also thank Rory Hammond, Jose Rivera, and Scott Womer for their willingness to speak with us.

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AEARO COMPANY
(Indianapolis, Ind.; www.aearo.com) manufacturers safety equipment for industrial workers and healthcare professionals. "We make specialized foam pads used for energy absorbing — that is, for dampening noises. We also make safety equipment like safety glasses, helmets, goggles, respirators," says Jose Rivera, Aearo's Technical Services, Operations Manager. Like most companies, Aearo has multiple sites. In addition to the Southbridge, Mass. headquarters, there are sites in Delaware, Indiana, Massachusetts, Oklahoma and the United Kingdom.

"Our entire corporation is run on HP 9000 systems and an HP 3000 [which is not on active support]. They cover every aspect of running our company. We have a system that lets us see how the company is doing as a whole. But the drawback of a centrally located system is that it requires some sort of disaster recovery or business continuity plan."

Rivera's goal is to have Aearo's systems back online and accessible to users within 36 hours. Aearo's nine IT sites are linked together by a SAP Enterprise Resource Planning system over a frame relay WAN that "we strive to keep online 24 hours a day, seven days a week," he explains. And that's backed by an Informix RDBMS [version 7.24]. That central system runs on a HP 9000 T500 connected to an EMC 3700 storage system with four HP 9000 Model G70s doing duty as application servers.

Until recently, Rivera wasn't particularly happy with SunGuard (Philadelphia, Pa.) when it came to some of his disaster recovery scenarios. "We didn't have the appropriate hardware configuration, the software patch levels for the OS were not where we would have liked them to be. That hindered us from hitting our 36-hour goal."

Rivera had attempted to recover his systems three times, but was never successful. Recalling a power outage from two years ago, he describes a mishap that blew out a transformer.

Name: Jose Rivera, Technical Services, Operations Manager

Company: Aearo Company (Indianapolis, Ind.; www.aearo.com.)

Business: Manufacturer of safety equipment for industrial workers, health care professionals and consumers

IT Assets: SAP Enterprise Resource Planning System with an Informix 7.2 RDBMS; 4 HP 9000 G70 and T500 servers running HP-UX 10.2

Recovery Window: 36 hours

Recovery Drills: Yes. 2x/year

BC Philosophy: "Disaster Recovery is a requirement."

"The facility had its own power plant, but a couple of lines had been shorted by some debris. We were dead in the water. And we would have struggled if we went to our previous provider." The system came back online, but four hours were lost. So, he looked for another vendor.

One of those vendors was HP. "We went to their facility [in Valley Forge, Pa.] and tested. And the first time, we were able to bring our systems back within our 36-hour deadline." That's less stress for the 10 individuals on Rivera's team which is largely responsible for Aearo's bread-and-butter SAP systems, PBX's and help desk calls. About six others are responsible for the overall frame relay WAN.

Rivera stresses that the HP facilities had everything that was needed. And more. They had a T500 and a couple of I-class systems, which were actually better than the ones we had at home [the G70s]. He also notes that "we have the High Availability Observer workstation connected through our Local Area Network providing 24-hour monitoring to HP so they access to our machine at any time, it polls our machine and checks its health and they then notify us of any issues."

Rivera provides a case in point: "We had a processor failure and we were able to get the system repaired and back online in under four hours." However, he points out that "it's not the same level of support on our application servers because if one of the app servers fail, we have four of those. So we would be able to reroute all of users to the remaining three." There are few Compaq ProLiant servers running Windows NT; but no

critical applications, according to Rivera. Applications like e-mail are not under support contract. "We just handle it in house."

Five years ago, Aearo like most other companies, had different systems running at different locations. "An IBM in Europe. An HP 3000 in Southbridge. An AS/400 in Indianapolis. They didn't talk to each other." But since moving to the central SAP system, disaster recovery has been a higher priority. Now with the Valley Forge hot site, Rivera is comfortable that "we can continue running our day-to-day operations in case a facility is taken off line."

Still recalling earlier days, Rivera says, "At the time, the reporting of all that information was rather difficult. Today we don't have that problem. We have a true data center with a power generator and UPS system that we didn't have at that time."

With fully redundant systems, internal backup and recovery procedures and their own generator in Southbridge, Aearo's systems stay online indefinitely, "as long as we can keep fuel in the [in-house] generator." Rivera explains that something that would prompt them to go [to Valley Forge, Pa. site] would be a telecommunication outage.

Long term goals include establishing a remote connection to the Valley Forge hot site. For now, Rivera is prepared to send out the tapes, so they could get the system online.

Recovery practices are scheduled every six months. However, he notes that HP provides the hardware. "We restore our systems on to it. There's not a hot system at the site."

MENLO LOGISTICS (Redwood City, Calif.; www.menlogistics.com) is a contract logistics company where Rory Hammond, Manager of Information Systems tries to design IT systems that are as close to total redundancy as possible. "We have these warehouses with huge amounts of inventory that cost millions of dollars for our customers. We have an HP warehouse. We have an IBM warehouse. And we have a [warehouse for a] very large chip maker." Other clients include AT&T, Dow Chemical, NCR, Nike and Sears.

According to Hammond, "Our customers will ship goods and orders to us, and we decide how to best get those goods out of the warehouse and to their destination. We also provide shipping and destination services. So, all the warehouses need to be 24x7."

With 16 warehouses throughout the world and three to four warehouses being added each year, Hammond's work is cut out for him. From a business continuity standpoint, Hammond favors HP-UX mirroring. "We can do hardware mirroring, but we normally use disk mirroring because I can get more bang for the buck. So if we lose a disk, we can fail over to disk. We also have dual paths or dual SCSI cards to the devices. If the CPUs are on separate cards, you can actually lose a CPU, which we have on one occasion, and the box won't die. It will limp along on the other CPU. HP does that well in the K-[class] boxes. That's good because you can schedule an outage."

Menlo's business success depends on getting the client's inventory where it belongs in the fastest amount of time. So, Menlo depends on IT in the form of its Real-Time Warehouse Management System (RWMS). Customized for each warehouse, the RWMS is based on an Informix 7.2 RDBMS integrated with radio frequency (RF) terminals, bar code and label printers and EDI. "We strive for 100 percent accuracy with people out in the terminals tagging and verifying."

Name: Rory Hammond, Manager of Information Systems

Company: Menlo Logistics (Redwood City, Calif.; www.menlogistics.com)

Business: Provides global logistical operation services, including order fulfillment, transportation, storage and distribution, from raw material to consumer; provides logistics control for companies with warehouses

IT Assets: Informix-based warehouse management system; mixture of HP 9000 D- and K-class systems running HP-UX 10.2; moving to 11.0 in the future

Recovery Window: None

Recovery Drills: Yes. 2x/year

BC Philosophy: "Have a failover or backup plan, or you'll be out of business."

Warehouses, full of inventory, however, are also full of just about everything else — including dust, dirt, oil, smoke, grease and other sundry mixtures not conducive to "sterile" glass house computing. Hammond explains: "I had a server in this room during the construction of a warehouse that didn't have a roof on it. The construction workers had taken out the metal ducts and there was something like four foot openings in the wall with the wind blowing through. The back door was boarded and there were sandbags along the bottom to keep water out."

"I was installing the Informix application software. And I was having trouble with the tape drive getting dirty — having to run the tape cleaner more than what I normally would expect. When I opened the door and looked at the far wall — which was about 300 feet away — I could not see the wall because of the cement dust. They were cutting cement for the construction of this warehouse. They were using jackhammers to finish the remodeling and I could see the server bouncing from the vibrations."

"After I left, there was a torrential downpour. Water came in through the back door. The workers moved everything off the floor except for the server. But that [K-class] box ran for a year and half. Later I had a thermal check, the CE came in and discovered the fan had burned out. He found all kinds of cement dust in there. He replaced the fan and that box is still working after three years."

Then there are the power outages. "If there are no lights, the guys just can't work," states Hammond. "But

the systems are on UPS and they usually stay up." Hammond describes a one-hour outage in Richmond, Va. where there were no orders being transferred, "but the data was safe and box was up."

The example illustrates Hammond's belief that cold components are problems waiting to happen. "When components go down and come back up, you're going to have problems with the life span of the components. I keep them up hot and running." The UPS are for that — they're designed to run up to 15 or 20 minutes." Hammond has a few American Power Company UPSs, but the majority are integrated in the D- and K boxes. "We buy them and put them in the [server] rack."

Because of the volumes of the transactions and the number of people getting in, Hammond avoids running the WMS centrally over a network. "They would probably not get a satisfactory response," he says. "Because they are inexpensive, we have slow frame connections which are 56K and 128K lines — about \$600 to \$1,200 a month — whereas as a T1 line from Portland to Virginia [the cost] is huge. So, we don't generally hook up T1s or use large WANs to run warehouses over the network." So for Hammond, it's better to replace the hardware on site.

For Hammond, disaster recovery services are like insurance policies. In the event of a total failure, he is faced with recovering the warehouse and the associated systems. "If we lose the whole warehouse in an earthquake or something, it just falls in and dies. The strategy is that we have off-site



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tape backups. What we're really doing is recovering the data to see what we lost. While they are rebuilding the warehouse and restocking it, we have plenty of time to rebuild and recreate the system."

All of the warehouses have LAN connections, according to Hammond, that are used for support and for employees to send and receive e-mail. However, he stresses that "Our backup is not a backup LAN, but actually dials-in direct to the server. We have LAN redundancy. Some have ISDN backup. Some don't. We can be down for a day, and probably still get product out because the servers are centralized." However, he notes that "we ran warehouses for about a year on telephone lines where we dial-upped and dropped the data. One of my assumptions," states Hammond, "was that the server was going to be onsite and the network could be down and we could run standalone for a few days."

If the data center is lost, Menlo's

disaster recovery services are contracted through Comdisco. "If you lose something, they tell you where the data center is available and where to move your stuff. We take our data and restore it remotely." The last recovery practice was done in April. The most recent this past August. Hammond notes that the HP 9000 production boxes for Menlo are relatively new, so "we haven't practiced with those as of yet. We also have an AS/400 running another application that has fail over capabilities."

Hammond takes a slightly different approach for Menlo's glass house [located in Portland, Ore.] where preventing unscheduled outages of any kind is absolutely essential. "These are shared systems that are critical among many customers. So, we have redundancy and failover as the first line of defense. We have a production box and a fail over box. If we lose the backbone, we would reboot off of our backup box."

Hammond so far, however, has

avoided the HP MC/ServiceGuard and switchover kinds of solutions. "Sometimes it's easier to fix the problem than fail over. You still have to take the system down and fail back over when you get the problem fixed. Those are judgement calls." However, as Menlo reaches what Hammond refers to as critical mass, "we might be going to ServiceGuard or load balancing — if one box goes down they'll transfer the workload."

Personally, he would "like to see the production box in one geographical area and our development box in another." For now his goal is much more prosaic: "My goal is not to have any unscheduled outages. On the hardware side, we've been very successful at that. We have boxes that have been running 465 days since the last reboot. That's a good record." The only reason it went down was to do the Y2K upgrade. "We try to avoid unplanned outages." Indeed.

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ATMOS ENERGY CORP. (Dallas, Texas ; www.atmosenergy.com) distributes natural gas and propane to more than one million customers in 13 southwestern states. Scott Womer, Systems Engineer, runs disaster recovery tests twice a year. "For us it's very mandatory. It's more than just IT because we are a natural gas company. We have all those pipes out in the ground. We have to track leaks. We're liable for any kind of explosion monitors at every junction; sniffers along the pipe. Business Continuity Planning or BCP as we call it is very critical. Everything must be recovered in three days."

At Atmos, the call center is front and center. A centralized Customer Information System (CIS) handles all the calls for service orders, billing and meter reading. The CIS is a semi-off-the-shelf application backed by an Oracle RDBMS. Developed in part with SCT (Malvern, Pa.) using SCT's Banner CIS software. There are 50 to 150 SCT developers on staff to help customize the app. According to Womer, "We have a huge source code repository and version control."

On the hardware side, Womer says, "everything is ServiceGuard," referring to HP's MC/ServiceGuard product. MC/ServiceGuard allows you to organize your applications into packages and designate the control of specific packages to be transferred to another system or communications transferred to the idle LAN in the event of a hardware failure on the packages original system or network. Atmos' systems consist of a mix of HP 9000 K- and D-class servers.

The Oracle servers run on a pair of K580s. The Oracle Web application servers are running on a pair of K460s. There are two ancillary systems for drivers out in the field. "They all dial-up via cellular to get their service orders and emergency service requests, that runs on a D330 while our Internet firewall runs on a D370 and our OpenView server runs on a D370," describes Womer. With the exception of the Oracle Financials

Name: Scott Womer, Systems Engineer

Company: Atmos Energy Corp. (Dallas, Texas; www.atmosenergy.com)

Business: Distributor of natural gas and propane to more than 1 million customers in 13 southwestern states

IT Assets: Oracle ERP/Financials/HR/Payroll 7.32, 7.34 and 8.04

HP9000 4 K580s, 6 K460s, 4 D370s, 2 D350s, 2 D330s, a clustered pair of H30s.

Running HP-UX 10.2 and 11.x

Recovery Window: 3 days

Recovery Drills: Yes. 2x/year

BC Philosophy: "It's more than just IT."

[a pair of K 580s and pair of K 460s running HP-UX 11.0] everything is running HP-UX 10.20. Every machine has a partner in a two node cluster.

The above configuration, located in Dallas, contains the crown jewels of Atmos' central system. "The central site is the only one that has the ServiceGuard," says Womer. A frame relay WAN establishes a connection to all of Atmos' 86 sites. For small sites with less than five users, Womer uses a VPN solution coming in over the firewall. Womer also notes that his backup and recovery software is OmniBack. "But no MUM, just a central cell. We do that for all the HP boxes." Womer's OmniBack backup and recovery procedures also take care of applications running on Compaq ProLiant Windows NT servers, a single IBM RS/6000 and a "couple of Sun boxes and a dozen Linux servers."

For both the Call Center and the corporate site where all the data resides, disaster recovery services are contracted through Comdisco. "Every critical system we have to have back in 30 days is under contract for recovery. That includes actual offsite offices and space for 200 employees and workstations." Preparation includes a semi-annual practice. "We just scheduled the next one for December," says Womer. In case of a natural disaster, he's ready to send users to Grand Prairie, Texas. (30 minutes away) and system admins with backup tapes to New Jersey "where the HP systems live."

Thankfully, natural disasters have not proved to be a problem for Womer. But "fat finger" instances

that blow away the database on occasion are another matter. "Whoops, it's gone," he says chuckling. "We just do a restore." The cavalier attitude doesn't come without justification: "We do full backups everyday." To some IT managers, that might seem like overkill. But not for Womer: "I don't believe in incremental backups unless you have so much data that your hardware can't take it."

However, incremental backups are not entirely out of the question: "I have two boxes [a pair of Compaq ProLiant running Windows NT] that I do incrementals on if I can get a backup completed within our backup window, which is four hours. With 40G to 50G worth of user data on them, it takes 24 to 48 hours for those guys to back up. We do incrementals throughout the week, with a full [backup] on Saturday." Six single DLT tape drives plus two full-blown robotic libraries are located in Dallas. "We rotate tapes out off-site everyday with four-week, eight-week and 52 week rotations for daily, weekly, monthly tapes." The remote sites each have one DLT tape drive.

The data center is on a Liebert UPS — good enough for twenty minutes says Womer — "which is enough time just to run in there and start shutting things down."

So far, the most unusual circumstance for Womer has been toner dust from large high-speed line printers. "The accumulation of toner dust shorted out some memory chips. Since then, we added extra baffles and mufflers and put a partition between the printers and the servers."

Lost And Find

I JUST GOT BACK from a trip to Fiji. I had lost the company cell phone and had to go looking for it. This all started when I was asked 'where did you lose it'? Some quick

thinking allowed me to take a huge boondoggle looking for it. Because I had never been to Fiji before, I suppose the phone could not have been there.

SEARCH ME!

Amusing that I don't mind looking all over the world for my phone, yet I get upset when people use the **find** command to search the entire disk. They should know what directories they have been using and limit the search to those locations. Why search the whole disk when you've only been working under your home directory and one or two other directories.



Fred Mallett
frederm@famece.com

Of course, when looking for a lost phone, you never know where you might have lost it, so I am heading for Seattle next. Maybe Argentina after that. But I must admit: I had a hard time learning to use **find**. The reason is that it reminds me of a 6th grade English teacher, always complaining about predicates and verbs and other grammatical stuff. It must have been written by an English major.

The man page was not much help to me, thus I have developed my own way to describe it. Here goes:

First, learn that **find** is a very powerful command. It can do much more than **find** lost files. More accurately, it will search a tree structure, testing each object to see if it meets a set of

criteria, and if so, perform one or more actions. The set of criteria is actually a boolean expression, thus allowing us to apply quite a set of criteria and actions. This means that **find**, once learned, can replace many shell scripts.

I feel that the best way to look at the command synopsis is:

```
find <where> <what>
      <action>
```

The list of locations for **find** to search immediately following the command, for example: **find ~ /tmp /design/data** tells **find** to search three directories. This is what I meant by 'you should be able to limit the search to probable directories. If I was looking for an operating system configuration file, I might look in **/etc**, **/opt**, **/etc**, and **/var** rather than in all of **/**.

After the where, comes the powerful part. The 'what to look for' section takes many options. Let's start with the commonly known **-name** option, which allows us to specify a pattern that the desired file must match. Suppose I had a large home directory and wanted to search for a file named "phone" that I created somewhere in the tree structure:

```
find ~ -name phone
```

This is an incomplete command because I have not specified an action. HP-UX will do something reasonable (list the pathnames that match), but most versions of UNIX will not, so

lets supply the default action in case you are running on (gasp) something other than HP-UX:

```
find ~ -name phone -print
```

This command reads: Look in my home directory (~), for a file named 'phone', and print the pathname for all *objects* by that name. Notice that I said *objects* by that name, not files. Since I was looking for a file named 'phone', a more accurate list would have been created by this command:

```
find ~ -name phone -type f -print
```

Here we have specified that the name must be 'phone', and the type must be a file, not a directory, or link, or character file, etc. Another way to write the same command would be:

```
find ~ -name phone -a -type f -print
```

This is an important point to learn if you want to create very discriminating sets of matching criteria. The **-a** option means a boolean and. That is, the **-name** and the **-type** options must both be true, in order for the **-print** action to happen. Anytime you list two options in a row, there is an implied 'and' between them.

You can also supply patterns to the **-name** option instead of just fixed names, for example: **find . -name "phone*" -print**

means look in the current directory for any object that has 'phone' as part

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of the name, rather than exactly 'phone' as the name. Note that any wildcard characters used (* in this example) must be escaped from the shell. The easiest way is to use single quotes.

If you are using **find** to develop a list of pathnames that you will be just looking at, or editing, there is no need to be overly discriminating. If you are automating a task, you should be as discriminating as possible, so that the list of files acted on are as accurate as possible. There are many options that can be used to weed out objects that are not what you want. Sometimes this requires a boolean expression using the 'or' (-o) or 'not' (!) operators.

The following example looks for objects in the /etc directory with names ending in 'save':

```
find /etc -name '*save*' -print
/etc/upgrade/save
```

```
/etc/upgrade/save/swift/ttools/ts_save
```

The results of the command on my system are shown in italics.

If we were using **find** to create a list of names, and did not want to generate any directory pathnames, yet allow all other object types (files, links, or several other types of objects) we could use the logical negate ('not'):

```
find /etc -name '*save*' ! -type d -print
```

```
/etc/upgrade/save/swift/ttools/ts_save
```

Note that if you were using either of the C-shell shells (**cs**h or **tc**sh) this would work, though most people would have escaped the ! so that the shell would not think it was a history invoke:

```
find /etc -name '*save*' \! -type d -print
```

Because there was a space after it, an escape after the exclamation mark, it was not necessary. Sometimes you need to use the 'or' operator to supply multiple possibilities. The easiest

Find is a very powerful command. It can do much more than find lost files. It will search a tree structure, testing each object to see if it meets a set of criteria, and if so, perform one or more actions.

example of this is using the **-name** option. The following **find** command could never list any objects due to the implied 'and' between the two **-name** options:

```
find /etc -name test -name '*init' -print
```

An object cannot be named 'test' and end with 'init'. Using the **-o** option does not solve this issue:

```
find /etc -name test -o -name '*init' -print
```

This is again due to the implied 'and' before the **-print** option. Since the 'and' has higher precedence than 'or', this actually reads 'In /etc, if you find an object named 'test', do nothing, or, if you find an object named ending in 'init', (and) perform a **-print**. Amusingly enough, *this will work on HP-UX* but not on most other systems:

```
find /etc -name test -o -name '*init'
```

The real solution (meaning the one that can be supplied to other tasks with **find**) is to use the grouping operator to control precedence. Parenthesis are the highest precedence, the problem is that you must escape them from the shell, since they have meaning to the shell also. Here is a consistent (but ugly) way to write this:

```
find /etc \( -name test -o -name '*init' \) -print
```

This reads: if an object is named 'test' or ends in 'init', perform a **-print**. Using parenthesis allows us to write things like:

```
find /etc \( -name test -o -name '*init' \) -type f -print
```

Which requires that both of the matching the names must be files, not links or directories. If we show the implied 'and' operators, it would look like this:

```
find /etc \( -name test -o -name '*init' \) -a -type f -a -print
```

Whereas this:

```
find /etc \( -name test -o \( -name '*init' -type f \) \) -print
```

means that any object with a name of 'test', or files that end in 'init' will be printed. A final warning about using parenthesis is that you must put spaces both before and after each escaped parenthesis, or you will end up with an error such as:

```
find /etc \( -name test -o -name '*init' \) -print
find: bad option -o
```

We will have to save discussing some more ways to qualify objects, and more powerful actions that **find** can perform until next month.

My plane is waiting. Got to go find that cell phone. ♦

Are You Open To A New Point Of View?

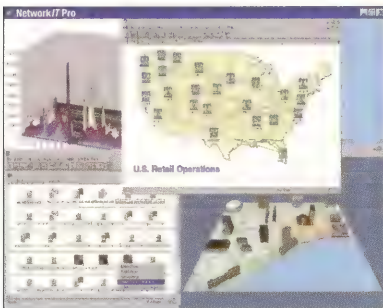
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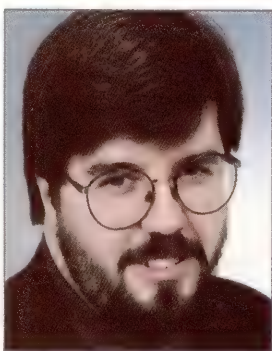
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The Mother Of All Sources

HP AND TECHNICAL BOOK publisher O'Reilly and Associates have created a new way to shop for Open Source software developers. Their new joint project, called sourceXchange,

is a way to connect the people who need the code with the people who write the code. SourceXchange "acts as an E-bay for software development," according to Wayne Caccamo, Director of Open Source Solutions for HP. Occasionally, project managers using Linux within HP found they needed to hire a contractor for some additional development work.



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for many UNIX sys admins. HP connected with Brian Behlendorf, a recognized leader in the Open Source movement because of his work with the Apache Software Foundation. With Behlendorf's experience in the Open Source community and HP's willingness to fund and operate the project sourceXchange became a

reality.

"The way it works is quite simple," says Caccamo. Need some software? Get an idea, figure out what you'll pay, create a Request For Proposal (RFP) and post it the sourceXchange Web site. Then sit back and wait for potential developers to review the RFP and respond with comments and/or bid proposals. SourceXchange acts as a trusted third party to insure the process goes smoothly. The only requirement imposed by sourceXchange is that the software must be Open Source. According to Behlendorf, "we're not

going to be religious" about which particular Open Source license (GNU, BSD, XConsortium, Apache, etc.) is used.

COMMUNITY ACTION

SourceXchange adds value in several ways. First, it brings the developers and users of software — called sponsors — together. "What we're basically building is a marketplace," says Behlendorf. Often times corporate sponsors are very new to the Open Source concept. They have no experience or contacts with the Open Source community. They have money and are willing to pay for what they want, they just don't have access to the developers that can make it happen. One important side benefit of the marketplace approach is demand aggregation. If a particular project would be too expensive for a single sponsor, multiple sponsors can get together and fund the project, dividing the cost and making it feasible.

Not surprisingly, Behlendorf sees a huge demand for projects in the Open Source arena. By providing a place for developers and sponsors to get togeth-

Good developers were hard to find and had to go through the HP contracting process. What was needed was a way to reach the developers and insure the developers' solution would really address the problem. All in a timely, cost-effective fashion, of course. So, an "E-services approach" was eventually applied to solve the problem. "We saw sourceXchange as a proof point for e-services," says Caccamo. If you don't know it by now, E-services is HP's new strategy emphasizing providing any and all computing functions via the Web. Creating discrete, modular, efficient services would encourage their use by a wide variety of Internet portals and, more importantly, users.

The best way to make sourceXchange successful was to party with an independent third-party. They approached O'Reilly and Associates, a leader in the Open Source movement by virtue of its line of books which have, in many cases, become the de facto documentation

SourceXchange <http://www.sourcexchange.com>

Open Source <http://www.opensouce.org>

HP E-services <http://www.hp.com/e-services>

O'Reilly & Assoc. <http://www.oreilly.com>

er, sourceXchange introduces demand to supply. Secondly, sourceXchange provides project management through peer review. The peer review process provides a mechanism to help insure that a particular proposal really addresses the demands of a project. SourceXchange provides "a third party developer recognized by O'Reilly and the community and approved by the sponsor," says Behlendorf.

This peer reviewer helps define the RFP, helps select the developer and provides "mentoring" to the developer. For instance, given a particular RFP, the peer reviewer might suggest a development language such as Java vs. C to a developer. Or the peer reviewer might suggest another method or process to the sponsor which will change the RFP or speed the development process.

Importantly, the peer reviewer acts as a mediator in the event of a dispute. For instance, if the sponsor says the product does not meet the agreed upon specifications and the developer disagrees, the peer reviewer "acts as a tie-breaker", deciding who's right.

Third, sourceXchange will provide a public performance history. Long term, "both developers and sponsors will develop a track record," says Behlendorf. This will allow users of sourceXchange to make informed decisions about with whom they will

work. This provides a service to the developer by seeing if a potential sponsor is flexible in his requirements and pays his bills. Sponsors will see if developers perform as promised and return value for money. This eliminates some of the uncertainty in the process.

WHO GETS WHAT?

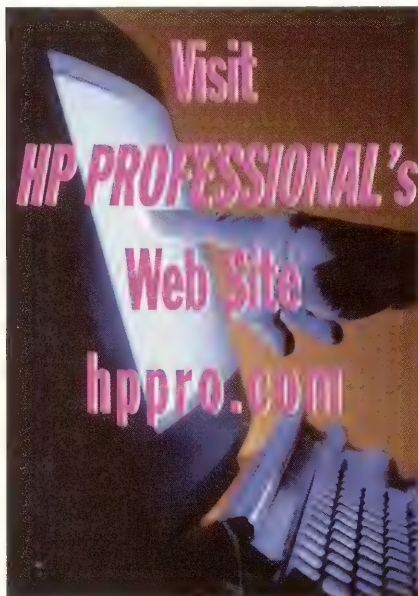
What does sourceXchange get in return for these services? SourceXchange gets a percentage of the agreed upon development fee. This is paid by the sponsor. The fee covers the cost of operations and the services of the peer reviewer.

What's the percentage? "It's all being negotiated," answers Caccamo. He expects it will be in the 20% to 30% range. According to Behlendorf, commercial outsourcers take any-

where from 50% to 75% over the actual contractors fees.

Money is not the point according to Caccamo. "We saw this as an opportunity to make a visionary contribution to the Open Source movement," he says. HP certainly seems to support sourceXchange. They have provided the hardware to run the project and were the first sponsors of RFPs on the site.

People certainly seem to agree that the sourceXchange concept is a good one. Even through the project just came out of beta at the time of writing, there are (according to the site) 2,356 users and 352 active developers registered with the site. RFPs worth over \$60,000 are already posted. Given time, sourceXchange just may be the visionary contribution HP would like it to be. ♦



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A Client's View Of App Monitoring

FOR YEARS I HAVE been a huge advocate of monitoring applications and services. Unfortunately, my methods of choice for monitoring have been a hodgepodge of custom programs,

off-the shelf applications and a lot of luck. My approach has been pretty much the same as every other "management expert" in the field: to look from the inside out. In many instances, that means looking at the server, not the client. For example, we developed an e-mail monitoring application a few years ago to monitor a cc:Mail implementation.

The application involved monitoring a text file for errors on DOS PCs, file system connections between those PCs and Windows NT servers, as well as gateway applications on NT and UNIX systems. Each of these custom applications wrote its data to a central log file on a UNIX machine. We then generated SNMP traps based on what events were written to the log files. This long involved process finally provided us with application monitoring events in our OpenView event browser. But, that's not the end of the story.

HUMBLE BEGINNINGS

We started finding ourselves building little monitoring systems to verify and keep the e-mail monitoring system running. Don't get me wrong. The system actually was a work of art that was extremely reliable, as long as it had plenty of care and feeding. I have always been an advocate of SNMP management but few vendors or soft-

ware developers have been willing to instrument SNMP in applications. There have been exceptions but no



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widespread implementations yet. Look for SNMPv3 and it's inherent security to change some of that. However, even a new simpler solution still involves looking from the inside out or simply looking and the server.

What's the alternative? Looking from the outside in? No, you have to look at application monitoring from the client perspective. International Network

Service (INS) has a product called Vital Suite (www.ins.com/software/vitalsuite) that performs this unique client perspective monitoring. It's based on an agent called VitalAgent IT. This Agent collects all relevant system information as well as performance data and application transaction data from the client. The next piece of the puzzle is the VitalAnalysis tool.

Vital analysis periodically collects all the agent information and correlates it together. It represents all this data in a rather unique Web-based interface. Both the agent and analysis products have excellent interfaces that can actually be quite addicting to use. The next puzzle piece is the VitalHelp which is the real-time event manager. Besides all the cool technology working between these products, the best part is the gateways that exist to move data from the VitalHelp

product into your existing management and help desk systems.

Vital Suite has 3 gateways available SNMP, SNTTP and Remedy. I am also told, for the real diehard developers out there, that a SQL interface is available to the VitalHelp database. So, we are monitoring applications and their response time from a true customer's perspective. How can you go wrong?

PROMISES AND LIES

Now some products and companies such as Compuware have claimed to do this for years by evaluating network traffic and performing measurements. The problem with Compuware and others has been two fold: First, monitoring is still performed from a central location, so you miss the "true" client perspective. The second problem is getting that much-needed application uptime and downtime data into a central management system such as HP OpenView.

Don't misunderstand me. I'm not advocating dumping all SNMP network, system and application management systems for tools such as Vital Suite. What I am proposing is simplifying some of our current specialty management systems and complementing them with "client perspective" monitoring.

— Charles Hebert is President of Southernview Technologies, Inc.
He can be reached at charles.hebert@southernview.com.

Sometimes You Don't Know What You've Got Till It's Gone



Remember that autographed baseball you had as a kid that you wish you still owned? And what would you give to get your old car back, the one that would be a classic today? We don't always recognize the true value of things until it's too late. Some executives don't realize how dependent their organizations are on information technology until something goes wrong.

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APPLICATION DEVELOPMENT

Ives TeamStudio Suite

Ives Development, Inc. announced an addition to the TeamStudio suite of software engineering tools for Lotus Notes and Domino, TeamStudio Librarian. TeamStudio Librarian provides a simple method for developers to build libraries of sharable design elements such as sub-forms, agents and script libraries.

TeamStudio Librarian accommodates a development organization's existing architectural approach and requires no retraining of developers or change in development processes. TeamStudio Librarian supports Notes R4.x. The R5 version is currently available for beta testing on the Ives Development Web site. TeamStudio Librarian costs \$425 per developer seat, and includes one year's maintenance, unlimited technical support and an automatic upgrade to the R5 version upon availability.

Contact Ives Development, Inc., Beverly, MA at (800)632-9787, (978)232-0145.

FalconMQ For HP 3000

Level 8 Systems has made its FalconMQ Message-Oriented Middleware (MOM) available for the HP 3000 platform. FalconMQ extends the functionality of Microsoft Message Queuing Services (MSMQ) and provides cross-platform connectivity, simplifying integration between Windows and Windows NT-based and HP-based applications.

Contact Level 8 Systems, Cary, NC at (919) 380-5354.

Watergate Introduces Test Tools For USB Ports And Gameports

Watergate Software, Inc. (Emeryville, Calif.) introduced PC-Doctor USB Loopback Adapter and PC-Doctor Gameport Loopback Adapter, low-cost test tools which enable PC professionals and PC manufacturers to test external port and peripheral functionality by simulating a real-world scenario. PC-Doctor USB Loopback Adapter acts as a standard par-

allel port loopback and a USB loopback device. It simulates a USB device on a USB bus and test for the ability for a USB device to attach to the USB host. The USB to Parallel port loopback adapter allows PC-Doctor software to send data out of the computer and receive data back without requiring connection to an external device. PC-Doctor USB Loopback Adapter is support in the PC-Doctor Windows 9x and MS-DOS environments.

PC-Doctor Gameport Loopback Adapter attaches to the end of a gameport or MIDI enabled port on a standard PC and works as a simulated test device. It ensures that the gameport is functionally compliant with joysticks and other gaming devices.

Both PC-Doctor Loopback Adapters are available for PC-Doctor Factory OEM customers. They will also be included with Watergate's PC-Doctor Service Center 2000.

Contact Watergate Software at (510) 596-2080.

DISASTER RECOVERY

Advanced Systems Concepts' RemoteSHADOW For Sun Solaris

Advanced Systems Concepts announced that its RemoteSHADOW disaster recovery solution now supports the Sun Solaris platform in addition to the Open VMS and UNIX platforms. RemoteSHADOW features an immediate recovery capability in the event of a system or site failure and transparently and continuously protects an organization's business information by providing it with update access to current data at an alternate location. Included are both local and RemoteSHADOWing capabilities for partitions or volumes in the event of a disk drive, controller, system or data center failure. Shadowing over any link is possible with RemoteSHADOW's network capabilities. RemoteSHADOW also boasts the Network Restart feature, which assists in the preservation of information following a network failure by sending the information involving changes to a queue when a connection is lost.

Contact Advanced Systems Concepts, Hoboken, NJ at (800)229-2724.

Objectivity/DB Hot Failover Option

Objectivity, Inc. (Mountain View, Calif.) announced Objectivity/DB Hot Failover, an option that provides support for the types of redundant processors common in telecommunications applications. The

Objectivity/DB Hot Failover option provides database redundancy between two machines and is well suited to the two-machine types of architectures that are found in high-availability telecommunications applications, including network management, PBX and computer telephony. Objectivity/DB Hot Failover renders the loss of one machine unnoticeable by applications and resynchronizes all databases after the failed machine is reconnected. Objectivity/DB Hot Failover is a two-machine extension to the functionality now provided to networks of three or more computers by Objectivity's Fault Tolerance and Data Replication options.

Contact Objectivity, Inc. at (650) 254-7100.

E-COMMERCE

Procom Brings Convenience Store To Internet

Procom Technology Inc. introduces its online "Convenience Store" to accommodate end users who are able to purchase and install Procom's products on their own. The "Convenience Store" is located at www.procom.com/e-commerce, under the "How to Buy" menu selection and carries Procom's full range of disk upgrade products for laptops, desktops, PCS and servers. An interactive online configurator helps those seeking a disk drive determine the best choice(s) of disk drives from Procom's product line. The "Convenience Store" also boasts a quick and easy to use order/entry screen and immediate shipping. Visa, MasterCard and American Express are accepted.

Contact Procom Technology, Inc., Santa Ana, CA at (949)852-1000.

InterBiz Meets Banking Challenges

InterBiz Banking Group, a division of Computer Associates (CA), has introduced its Bank Performance Management (BPM) suite of products to meet the challenges of the evolving banking marketplace by providing the tools for measuring profitability in organization, product and customer dimensions. The BPM products are being built on the BizWorks framework using the Jasmine TND infrastructure, and will incorporate Neugent technology to help predict customer behaviors and their impact to processing expenses and revenues. BPM's customized components include Activity-Based Costing; Activity-Based Analysis; Activity-Based

Forecasting; and Organization, Product and Customer Profitability. Beta testing for Activity-Based Costing is scheduled for late 1999.

InterBiz Banking Group is also offering CA-Infopoint Account Analysis Release 8.4 with more than 20 major enhancements including internationalization features for today's global economy. CA-Infopoint Account Analysis 8.4 will be available in late 1999.

Contact Computer Associates, Islandia, NY at (516)342-5224.

MESSAGING AND E-MAIL

Microdata Group Introduces MELIA E-Mail Management

MicroData Group, Inc. has introduced MELIA (Microsoft Exchange Log Import Agent), an e-mail management software application. MELIA can track all e-mail sent and delivered through Microsoft Exchange and will enforce compliance with corporate e-mail policies, sort e-mail for billing purposes, maintain internal e-mail security and monitor e-mail volume

to prevent network overload. All information is recorded in Exchange's Message Tracking Log. MELIA then automatically parses the Exchange Tracking Log and appends it to either a Microsoft Access (MDB) file or into an existing ODBC data source without modifying the information.

Pricing is on a per-server basis and starts at \$495 per server for a 1 to 3 server installation.

Contact MicroData Group, Topsfield, MA at (800) 924-8167, (978) 887-7072.

NETWORKING

Micromuse Netcool Internet Service Monitors 2.0

Micromuse Inc. announced the availability of NETCOOL/Internet Service Monitors (ISMs) 2.0. All Monitors in the Netcool/ISM version 2.0 suite now store data locally in open, published XML format, allowing ISM-collected data to be easily integrated into other tools and systems supporting XML, such as Microsoft's Excel application. Version 2.0 includes six new Monitors for the Distributed Host

Control Protocol (DHCP), remote Cisco Ping (RPING), dialup point-to-point (DIAL), Network Time Protocol (NTP), the Simple Network Management Protocol (SNMP), and a construct monitor (TRANSX).

Contact Micromuse Inc., San Francisco, CA at (415) 538-9090.

Omnitron Introduces Two 10/100 Ethernet Switches

Omnitron Systems introduced two new 10/100 Ethernet compact switches, FlexSwitch(tm) 600XC 4U and 8U, that offer four or eight 10/100 auto-sensing UTP ports. Each UTP port auto-senses 10/100 and half/full duplex to seamlessly integrate Fast Ethernet and legacy Ethernet workstations, hubs and switches and provide up to 200 Mbps of bandwidth to the end device. The FlexSwitch 600XC 4U and 8U also feature a UTP crossover switch that facilitates a straight-through cable connection and eliminates the need for a crossed cable when connecting to another switch or hub. Available now, the FlexSwitch 600XC 4U and 8U

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are backed with free lifetime warranty and 7x24 technical support. The list price is \$245 and \$295 for 4-port and 8-port models with an external power adapter, and \$305 and \$355 for models with an internal power supply.

Contact Omnitron Systems Technology, Inc., Irvine, CA at (800) 675-841.

SERVICES AND SUPPORT

Continental Resources Now Key Reseller For Tadpole-RDI

Tadpole-RDI, Inc. has appointed Continental Resources, Inc. a key reseller for its portable HP-UX and Solaris-based workstations and servers. Continental Resources will hold an inventory of Tadpole-RDI's three portable UNIX lines UltraBook, VoyagerIII and PrecisionBook for resale to industrial and commercial customers and to other resellers. Continental Resources will also promote the Tadpole-RDI range at key industry events and trade shows.

Contact Tadpole-RDI, Inc., Carlsbad, CA at 9760929-0992. Contact Continental Resources, Bedford, MA. at (781)533-0227.

Logical And Grant Thornton Join

Logical and Grant Thornton LLP have joined forces to provide customers with complete enterprise applications software solutions based on the Oracle Applications. This partnership will seamlessly create Information Technology (IT) solutions for mid-sized, growth-oriented manufacturers and distributors. Grant Thornton has taken much of the technical complexity out of the typical implementation through its Oracle Solutions Development Center, partly by housing its clients' Oracle Applications environments on its own equipment in the OSDC during the course of implementation. This approach allows the customer to install, test and become familiar with its new hardware, network, and operating system while the implementation team is training on and configuring the software.

Contact Logical Bloomfield Hills, MI at (248)335-8700, Contact Grant Thornton LLP Chicago, IL at (312)602-8369.

CBT Systems Announces Network+ Certification

CBT Systems announced the availability of Network+ Certifications courseware designed to provide networking professionals with the multivendor networking

skills needed for career enhancement and Network+ certification. The new Network+ course uses simulations coupled with established cognitive principles. The curriculum includes 20 courses covering PC Configuration, Service, Support and Implementation; NetWare 4.11 Administration; UNIX overview; Networking Essentials such as Types, Linkage, Data Transmission, Architectures, and Security; and Microsoft TCP/IP on Windows NT 4.0. Hundreds of test questions are also included to help prepare students for the Network+ Certification exam given by Sylvan Prometric.

The Network+ Certification courseware is CD-based and can also be deployed over a corporate Intranet or LAN. The courseware is available immediately to customers via ForeFront Direct and CBT Systems' direct sales channels. A free demonstration of the course is available at www.ffg.com.

Contact ForeFront Direct at (877)TRAINING. Contact CBT Systems, Redwood City, CA at (888)714-5900.

STORAGE

Aladdin's Dropstuff 5.0

Aladdin Systems, Inc. announced the availability of DropStuff 5.0 for Windows and offered a free upgrade to registered users of DropStuff 1.0. DropStuff 5.0 includes a new StuffIt compression algorithm that creates StuffIt archives up to 20% smaller than Zip files, enabling users and recipients to save 20% more bandwidth making downloads and uploads 20% faster, and enables users to save 20% more space. DropStuff 5.0 offers enhanced support options from the Help menu which provide easy access to online help from Aladdin's Web site. Aladdin Expander 5.0, a Windows decompression tool that gives users access to all of the popular compressed and encoded files on the Internet is also included.

Upgrades to DropStuff 5.0 are free to registered DropStuff 1.0 users. A free 30-day trial period is offered to new users, after which, users must contact Aladdin to pay the \$20 registration fee.

Contact Aladdin Systems, Watsonville, CA at (831)761-6200.

Quantum DLT 8000 Tape Drive

Quantum Corporation announced the availability of the DLT 8000 drive in autoloader, library and stand-alone configurations. The DLT 8000 provides a native capacity of 40GB (80GB average

compressed) and a 6MB/second data transfer rate (up to 12MB/second compressed), which is a 15% increase in capacity and a 20% increase in performance over current DLTtape drives. The DLT 8000 provides higher reliability and lower cost of ownership, and high mean-time-between-failure and head life figures. The DLT 8000 uses the same DLTtape IV media as the DLT 7000 and DLT 4000, and is fully backward-compatible with both drives. The DLT 8000 reads and writes to DLTtape III and DLTtape IIIXT media, providing backward compatibility with the DLT 2000 and DLT 2000XT drives. The DLT 8000 is offered with a Single-Ended/Low Voltage Differential (LVD) SCSI interface option. A High-Voltage Differential (HVD)/SCSI bus option is also available.

Contact Quantum Corporation, Milpitas, CA at (408) 894-4000.

SanDisk CompactFlash

SanDisk Corporation is supplying HP's PhotoSmart C500 and C200 digital cameras with CompactFlash (CF) memory cards. The HP PhotoSmart C500 includes a 16MB CF memory card; the PhotoSmart C200 includes an 8MB CF memory card. Both cameras include built-in USB connectivity for transferring photos to a desktop computer. HP also announces HP PhotoSmart P1100 and P1000 printers, which support direct printing from CF memory cards and wireless transfer from the PhotoSmart C500 digital camera. SanDisk Compact memory cards are available in retail outlets worldwide and range from 4MB and 96MB capacities.

Contact SanDisk Corp., Sunnyvale, CA at (408) 542-0500.

Young Minds Announces Mass Production System 4

Young Minds, Inc. announced the release of the Mass Production System 4 (MPS4), a fully networkable enterprise-wide, high-speed recording system for UNIX. MPS4 combines MakeDisc premastering software, intelligent SCSI controllers, up to four 8x writers, a thermal printer and robotic technology to seamlessly create up to 100 unique CDS without user intervention. In addition, MPS4 offers flexibility and upgradability.

Contact Young Minds, Inc., Redlands, CA at (800) YMI-4YMI, (909) 335-1350.

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Western Scientific Debuts CD-ROM Network Server Line

Western Scientific (San Diego, Calif.) debuted its CD-ROM Network Server product line. The CD-ROM Network Server is designed to give users concurrent access to CDS over the network using an interface that enables users to quickly find, select and run CD applications without inserting a CD or having a CD-ROM drive on the workstation. The CD-ROM Network Servers attach directly to the network and create virtual CD-ROM drives to support multimedia applications including DVDs. To access the CDS, users open the virtual drive and drag the appropriate CD icon to the drive. Individual workstations can be connected to up to 24 virtual drives and 255 users can access the same CD simultaneously. CD-ROM Network Servers are also network file server independent.

Base systems start with 7 CD drives and 4.3 GB of disk storage and are priced at about \$2,500. CD-ROM Network Servers are fully upgradeable and are not limited by the number of optical CD-ROM drives.

Contact Western Scientific at (800) 443-6699, (858) 565-6699.

Imperial Technology Announces MegaRam-500E

Imperial Technology (El Segundo, Calif.) announced the addition of the MegaRam-500E to its suite of MegaRam solid-state disk products. The 5 1/4 inch MegaRam-500E allows for increased storage capacity and provides faster backup and restore times. It uses an industry standard IDE interfaced disk as its backup device. It is fully compatible with the MegaRam-500 and can be attached to the existing storage systems in the same manner as the older MegaRam-500. The MegaRam-500E is available in both volatile and non-volatile version. The non-volatile version incorporates an Internal Disk and Battery Unit (IDBU), which includes the new 2 1/2 inch IDE backup disk. The MegaRam-500E has a memory capacity of up to 3.21 gigabytes in non-volatile versions and up to 4.292 gigabytes in versions without disk backup.

Contact Imperial Technology at (800) 451-0666, (310) 536-0018.

Mylex RAID Controllers Now Part Of VA Linux Servers

Mylex Corporation (Fremont, Calif.) announced that VA Linux Systems (Sunnyvale, Calif.) has incorporated

Mylex RAID controllers into its entire line of Linux servers. Mylex's eXtremeRAID 1100 controllers are being used to maximize performance in VA Linux Systems' mid- to high-end servers. The eXtremeRAID 1100 integrates Mylex firmware, a 223 MHZ Intel StrongARM on-board RISC processor and a 64-bit PCI bus and multiple Ultra SCSI LVD busses. It delivers performance greater than 8,000 I/Os per second. Mylex's AcceleRAID 150 controllers are being used for RAID protection for VA Linux Systems' line of entry-level servers. AcceleRAID 150 is a high-performance, single channel Ultra2 SCSI LVD controller for desktops, workstations and entry-level servers that also upgrades existing system board SCSI channels to powerful RAID channels. AcceleRAID 150 uses chips on the servers' motherboard, thus offering many of the same high performance and fault tolerance features found in expensive high-end RAID controllers at a more reasonable price.

Mylex's controllers are available in all VA Linux Systems' servers and are also available through Mylex's channel network. The eXtremeRAID 1100 is available in two and three channel configurations; pricing starts at \$1,395 for a two channel configuration. Prices for the AcceleRAID products start at \$499. Information for the VA Linux System servers can be found on their website.

Contact Mylex at (800)77-MYLEX, (510)796-6100. Contact VA Linux Systems at (888) VALINUX-4U.

WORKFLOW AND DOCUMENT MANAGEMENT

MYRIAD 4.2 Released

Informative Graphics Corporation has released MYRIAD Version 4.2. MYRIAD is a document, drawing and 3D model view and redline program for enterprise Web-enabled E/PDM and intranet based document systems. It provides a single and common user interface to imaging, INSO, Adobe and CAD, including an optional add-on for 3D visualization. With MYRIAD V4.2, the user no longer need to decide how to get the best print. A batch print of multiple documents and drawings can direct the documents to a printer, drawings to a plotter and Changemarks text to the printer. Documents are all auto-sized, auto-oriented and include the appropriate ISO9000 print banners and watermarks. MYRIAD V4.2 includes a network install feature

which minimizes the System Administration effort required in large network deployments.

The AutoDesk web standard DWF (Whip format) has also been added to IGC's ActiveX, Java and MYRIAD product lines as a supported format. MYRIAD's optional 3D viewing has been enhanced with improved visualization, improved performance and added support for SolidWorks 99 and VRML.

Contact Informative Graphics Group, Phoenix, AZ at (602)971-6061 ext. 109.

NETWORK INTEGRATION

Teklogix Adds TekRF Integration Components For R/3 To TekRF Product Suite

Teklogix International, Inc. (Vancouver, British Columbia, Canada) added the latest release of TekRF Integration Components for R/3 to expand its TekRF product suite. TekRF provides radio frequency (RF) data collection capability for warehousing, manufacturing and distribution operations for the SAP R/3 environment. Teklogix's enabling solution is certified by SAP for use with the CA-ADC, WM-LSR and MM-MOB interfaces. The TekRF solution enables R/3 functionality to be extended to an organization's mobile workforce by integrating Teklogix advanced RF communications network, handheld and vehicle mounted terminals and component-based transaction objects. Wireless data collection terminals can directly access any transaction supported by SAP Manufacturing and Sales and Distribution applications.

Enhancements included in the latest release of TekRF Integration Components for R/3 include the TekRF Transaction Design Studio, a set of wizard-based transaction designers and editors. The expanded TekRF solution complements myosep-tum, which provides an open collaborative business environment of personalized solutions on demand.

Contact Teklogix International, Inc. at (800)633-3040, (604) 214-7100.

PRINTERS

NTP Software Announces Print Quota Manager

NTP Software (Manchester, N.H.) announced Print Quota Manager for Windows NT Server. Print Quota Manager manages the size of printer jobs on a Windows NT network. With Print Quota Manager, customers can limit the

number of pages individual users can print on a Windows NT Server regardless of client operating system; obtain notification to alert users to restrictions through e-mail or pop-ups; restrict the number of pages printed by a user or users within a specified time period; restrict the print jobs accepted by file types, control printing queues by denying large jobs, certain file types and access to users who have exceeded their print quota; capture historical data of all pages printed; and monitor and enforce print quotas in real time.

Print Quota Manager is administered through Microsoft Management Console (MMC). Pricing begins at \$395 per Windows NT Server. One year of maintenance is included.

Contact NTP Software at (800) 226-2755, (603) 622-4400.

Troy XCD'S Pony 100 Internet Print Server Steps Up To The Gates

Troy XCD, Inc. (Irvine, Calif.) introduced

the Pony 100, a low-cost Internet print server which connects printers to the Internet and to LANs. The Pony 100 supports the most network printing protocols, including TCP/IP, IPX/SPX, DLC/LLC, NetBEUI, AppleTalk, LAT/VINES IP and POP3/SMTP. The Pony 100 features 100baseTX and 10baseT network connectivity, with automatic sensing of the network type. A bidirectional IEEE P1284 Centronics-compatible parallel port plugs directly into the printer. A serial port is also provided.

Included with the Pony 100 is PrintraNet, TROY XCD's Internet remote printing software. Using PrintraNet with Windows 95 or Windows 98, one can be in North America and print a job on another continent on a printer connected to a TROY XCD print server using the Internet as the transport mechanism. The print jobs can be printed at the full resolution of the printer and in color and PrintraNet transmits original-quality documents. Pony 100 also comes with the HP JetDirect print server and works with the

JetAdmin and Web JetAdmin management programs and with host printing software that supports the JetDirect.

The Pony 100 is available from TROY XCD distributors; pricing begins at \$260.

Contact TROY XCD at (949) 399-0820.

Xerox Debuts DocuPrint 92C EPS

Xerox Corporation debuted the DocuPrint 92C Enterprise Printing System (EPS), a 600-DPI highlight color production printer. The DocuPrint 92C EPS can apply color to highlight any document and prints as fast as 92 pages per minute. It can have paper capacities of up to 3500 sheets through up to four programmable input trays for automatic insertion of different paper stocks.

The DocuPrint 92C EPS is open and modular and supports PostScript; PCL for jobs from network, client/server or ERP environments; LCDS, Metacode and ASCII for mainframe applications; and IPDS and AFPDS for IBM PSF platforms;



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as well as other data streams. A single DocuPrint 92C EPS can be configured to operate in one or more of these environments.

The DocuPrint 92C EPS is available as of October 1999 for about \$265,000. A version supporting LCDS printing should launch in the first quarter of the year 2000.

Contact Xerox at (800)ASK-XEROX.

Iomega Launches New Initiative To Address Desktop Data Storage Needs

Iomega Corporation has launched a new initiative to address the specific desktop data storage needs of enterprise environments. Iomega has made several infrastructure changes which include the creation of a Global Support Center devoted to enterprise customers that is open 24 hours a day, an Enterprise Customer Council that advises Iomega on enterprise customer needs and other desktop storage issues, a dedicated sales force and enterprise volume pricing that provides discounts for higher quantity purchases.

Contact Iomega at (800) MYSTUFF. ♦

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HP AND SAP ENTER SERVICE-DEVELOPMENT ALLIANCE

HP and SAP AG (Walldorf, Germany) allied to deliver complementary service offerings to joint customers.

HP and SAP are developing a communication platform which links their customers with vendors, partners and service providers, to provide a direct exchange of best service practices. The SAP Business Community is part of the mySAP.com solution, aimed at lowering the TCO by using automated Web-based service processes and at ensuring high availability of customer systems.

The first two services offered under the alliance are Systems Performance Check for Windows NT in SAP Environments and HP Network Performance Assessment for SAP Environments. Both are aimed at mission-critical SAP installations and networks and provide customers with the ability to plan and fine-tune these installations and networks.

Contact HP at (800)452-4844 or www.openview.hp.com. Contact SAP at www.sap.com.

HP AND eONLINE JOIN TO DELIVER ENTERPRISE APPLICATIONS OVER THE INTERNET

HP and eOnline (Cupertino, Calif.) announced a strategic alliance to deliver SAP inter-enterprise software solutions via the Internet to small-and medium-sized enterprises. HP and eOnline will develop, market and deliver application-hosted solutions for SAP applications outsourcing solutions. HP's global channel partners will be trained and certified to sell eOnline's services for SAP solutions to their smaller customers.

HP will also have access to eOnline's channel of eSolutions partners. The eSolution Partner program certifies and integrates leading SAP Implementation Partners and SAP Certified Business Solution (CBS) providers into the eOnline service delivery chain, giving customers the freedom to choose which implementation partner they would rather work with. HP can now offer a bundled e-service to their customers, including application implementation, application maintenance and technology infrastructure.

Contact HP at (800)452-4844 or www.hp.com. Contact eOnline at www.eonlineinc.com.

JUMPSTART FOR HP IMPROVES DEVELOPMENT TIME FOR WIRELESS APPLICATIONS

HP, Proxim, Inc. (Rochester, N.Y.) and Odyssey Software, Inc. (Sunnyvale, Calif.) announced JumpStart, a single-solution developers toolkit that offers companies real-time access to enterprise information. JumpStart is designed to work with HP's Microsoft Windows CE operating system-based ultra-portable PC companion. JumpStart enables developers and solution providers to easily build mobile, real-time wireless applications with components including the HP Jornada 680.

The JumpStart for HP Developer Kit is a limited-time offer and is now available in the U.S. to qualified developers through Connectronics for \$1,899.

Contact Connectronics at (319) 366-4971 or www.connectronics.com or visit www.cejumpstart.com for more information.

HP PROCURVE SWITCHES PROVIDE HP WEBQoS COMPATIBILITY ACROSS CAMPUS LANS.

HP announced that its ProCurve Networking switches provide HP WebQoS (Quality of Service) compatibility across campus LAN environments, which reduces the cost of prioritizing network traffic. ProCurve QoS-enabled Layer 2 and Layer 3 switches streamline traffic from Web servers, clients, application servers and database servers by automatically mapping Layer 3 prioritization techniques within HP WebQoS to 802.1p prioritization.

HP ProCurve 10/100 Switches 8000M, 4000M, 1600M, and 2424M have implemented the HP WebQoS compatibility for simple, intuitive network management that defines and monitors policies. The solutions support various software, including Windows NT, Linux and HP-UX servers. Prices include a lifetime limited warranty and are as follows: \$1,999 for the ProCurve Switch 8000M, \$3,599 for the ProCurve Switch 4000M, \$1,500 for the ProCurve Switch 1600M and \$2,139 for the ProCurve Switch 2424M.

Contact HP at (800)452-4844 or www.hp.com/go/procurve.

HP AND STARMEDIA FORM E-COMMERCE ALLIANCE FOR LATIN AMERICA

HP and StarMedia Network, a global online network for Spanish and Portuguese speaking audiences, have joined forces to provide Latin American merchants with an integrated e-commerce solution that will enable merchants to create a Web-based store in less than 24 hours. The "Commerce for the Millennium" solution will launch in Brazil next month and will expand to the rest of Latin America by early next year.

The e-commerce solution leverages HP e-services offerings, including application-hosting; Web-based procurement; consumer retail services; as well as a sales and marketing platform on StarMedia's leading online properties.

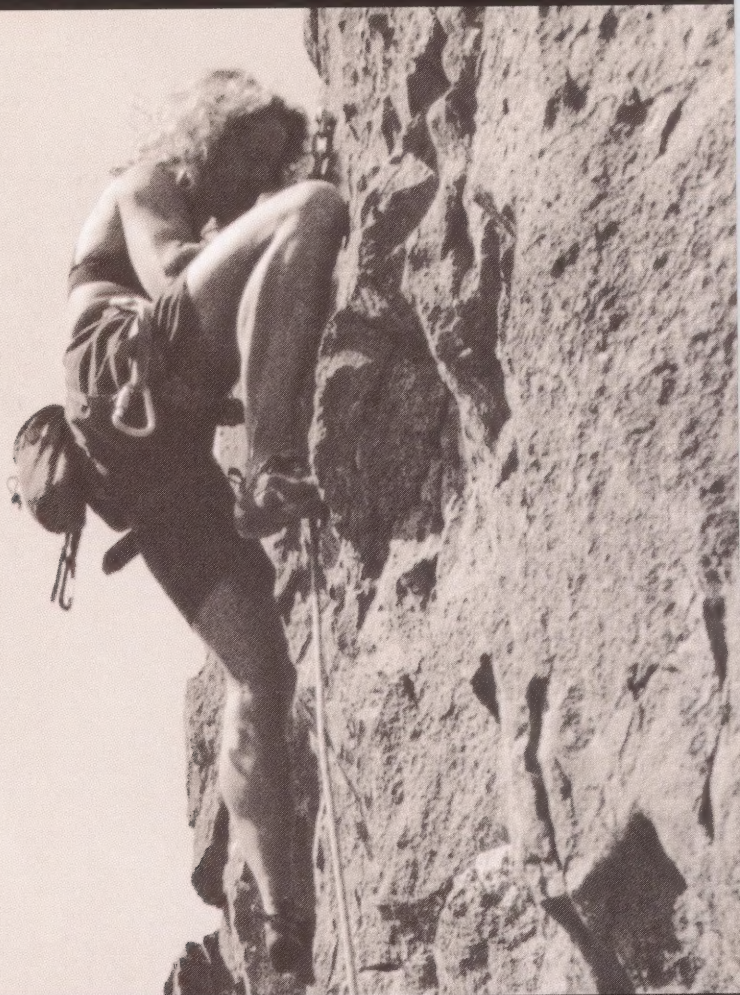
Contact HP at (800)452-4844 or www.hp.com. Contact StarMedia at www.starmedia.com.

HP AND USA.NET JOIN FORCES TO DELIVER OUTSOURCED MESSAGING SERVICES

HP and USA.NET, a privately held e-mail outsourcer, have formed a five year partnership to develop and deploy outsourced messaging services for small, midsized and large companies. HP will invest up to \$15 million in hardware and infrastructure services to help implement and market USA.NET's commercial messaging solutions. USA.NET's e-mail outsourcing services will be available as part of HP's portfolio of e-services offerings through HP's network of channel partners. HP will become one of USA.NET's integral technology partners, providing UNIX system servers and storage, Smart Internet Messaging software and services to support future growth in USA.NET's business e-mail outsourcing solutions. USA.NET's Professional Messaging service will also be added to HP's Commerce for the Millennium offering, an end-to-end solution to deliver e-services to small and midsized businesses.

Contact HP at (800)452-4844 or www.hp.com. Contact USA.NET at www.usa.net.

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—L.C. Thurow



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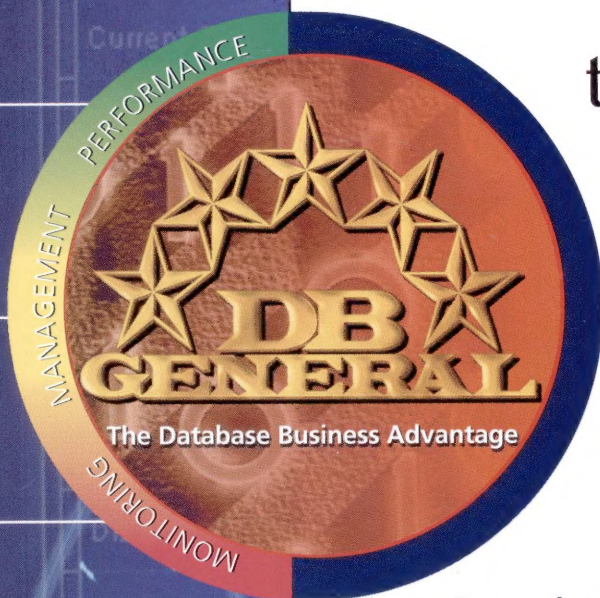
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